

Contact Information

NOAA National Ocean Service
Marine Biotoxins Program
219 Fort Johnson Road
Charleston, S.C. 29412
Phone: (843) 762-8511
Fax: (843) 762-8700

Dr. Steve Morton, Project Leader
Phone: (843) 762-8857
Email: Steve.Morton@noaa.gov

Wendy Wicke
Program Coordinator
Phone: (843) 762-8656
Email: Wendy.Wicke@noaa.gov

Julie Cahill
Outreach Specialist
Phone: (843) 762-8657
Email: Julie.Cahill@noaa.gov

Additional Ideas

- If you have prepared slides available you can use other marine organisms (i.e. sea star or zooplankton larvae) to compare with your phytoplankton sample.
- Once students have a basic understanding of relative size of phytoplankton compared to other common objects have them compare different types of phytoplankton.
 - Is there a size difference between dinoflagellates and diatoms?
 - Do individuals of the same species vary in size?



How Big Are Phytoplankton?

e



Southeast Phytoplankton Monitoring Network

www.chbr.noaa.gov/CoastalResearch/SEPMN/

Objectives

- To build a solid understanding of the relative size of phytoplankton through comparison with other common objects viewed under a microscope.
- To develop a basic understanding of the unit of measure, micrometer (µm).

Materials

- 1. Light Microscope (4x,10x,& 20x objectives)
- 2. Slides/Cover slips
- 3. Metric ruler
- 4. Pipette
- 5. Scissors
- 6. Newspaper "e"
- 7. Human Hair
- 8. Phytoplankton sample

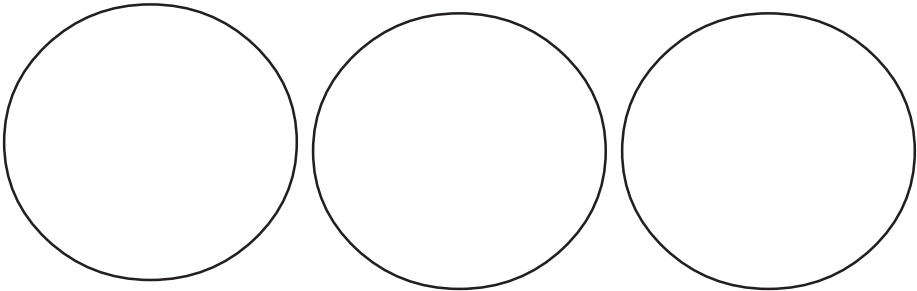
Optional

- 1. Eye Piece with reticule

Helpful Hint

- One micrometer is equal to one-millionth of a meter, or one-thousandth of a millimeter.

1mm = 1000µm
- Use Protoslow to keep dinoflagellates and zooplankton from moving in your sample.



Sample			
Objective			
Estimated Size			

Procedure

I. Field of View Determination

- a. With the lowest power microscope objective (4x) in position, place the millimeter (mm) ruler on the center of the stage, so the scale is visible through the eyepiece.
- b. Line up the 0 mm line with the left side of the circular field of view.
- c. Determine the distance across the circular field of view (in mm).
- d. Record the diameter in data table 1.
- e. Repeat the process for the 10x and 20x objectives.

DATA TABLE 1			
OBJECTIVE	TOTAL MAGNIFICATION	FIELD OF VIEW	
4X	40X	mm	µm
10X	100X	mm	µm
20X	200X	mm	µm

II. Size Estimation

- a. Using three separate slides and coverslips mount the newsprint "e" strand of human hair, and phytoplankton sample.
- b. View each slide with a light microscope using the 10x objective in the following order:
 - I. newspaper "e"
 - II. human hair
 - III. phytoplankton sample
- c. In lab books, or on the chart to the left, have students draw the microscopic field of vision for each sample.
- d. Record sample name and microscopic objective setting. Based on the size of the circular field of view determined above, estimate the size of each sample and record the data.